The CHEMIST

Publication of

THE AMERICAN INSTITUTE OF CHEMISTS, INC.

EDWARD L. GORDY, *Editor*, 233 Broadway, New York City

VOLUME IX DECEMBER, 1932 NUMBER 11

TABLE OF CONTENTS

Entered as second-class matter February 28, 1930, at the Post Office at Easton, Pa., under act of August 24, 1912.

Issued monthly at 20th and Northampton Sts., Easton, Pa.
Subscription price, $2.00 a year. Single copy, 25 cents.

Editorial Advisory Board

Contributing Editors

Contributing Editors (Continued)

ERNEST G. JARVIS, *President*, Niagara Falls Smelting & Refining Company, Niagara Falls, N. Y.

MARTIN KILPATRICK, JR., *Assistant Professor of Chemistry*, University of Pennsylvania, Philadelphia, Pa.

CHARLES A. KRAUS, *Research Professor of Chemistry*, Brown University, Providence, Rhode Island.

J. M. F. LEAPER, *Chief Research Chemist*, E. F. Houghton Co., Philadelphia, Pa.

ALAN PORTER LEE, *Chemical Engineer*, 123 Liberty Street, New York, N. Y.

STEWART J. LLOYD, *Dean*, School of Chemistry, Metallurgy, and Ceramics, University of Alabama, Alabama.

W. C. MACTAVISH, *Professor of Chemistry*, New York University, New York, N. Y.

ALEXANDER H. MCDOWELL, *Graduate Student*, University of Michigan, Ann Arbor, Mich.

J. S. MCHARGUE, *Acting Head of Department of Chemistry*, Kentucky Agricultural Experiment Station, Lexington, Ky.

ROBERT J. MOORE, *Development Manager*, Varnish Resin Department, Bakelite Corporation, 230 Grove Street, Bloomfield, N. J.

D. P. MORGAN, *Commercial Research*, Scudder, Stevens, and Clark, 111 Broadway, New York, N. Y.

CHARLES E. MULLIN, *Consulting Chemist*, 218 Tindall Ave., Greenville, South Carolina.

M. STARR NICHOLS, *Assistant Professor of Sanitary Chemistry*, University of Wisconsin, Madison, Wis.

C. A. NOWAK, *Director*, Nowak Chemical Laboratories, 516-17 Chemical Bldg., St. Louis, Mo.

JOHN M. ORT, *Assistant Professor of Biophysics*, Mayo Foundation, Rochester, Minn.

HOWARD W. POST, *Assistant Professor of Chemistry*, University of Buffalo, Buffalo, N. Y.

LEON V. QUIGLEY, *Public Relations Counsel*, 730 Fifth Avenue, New York, N. Y.

L. C. RAIFORD, *Professor of Organic Chemistry*, University of Iowa, Iowa City, Iowa.

W. T. READ, *Dean*, School of Chemistry, Rutgers University, New Brunswick, N. J.

A. P. SACHS, *Consulting Chemist*, 136 Liberty St., New York, N. Y.

GEORGE SCHNEIDER, *Technical Assistant to President*, Celanese Corporation of America, 180 Madison Ave., New York, N. Y.

FOSTER D. SNELL, *Consulting Chemist*, 130 Clinton Street, Brooklyn, N. Y.

JAMES N. TAYLOR, Chemical Division, Department of Commerce, Washington, D. C.

H. P. TREVITHICK, *Chief Chemist*, New York Produce Exchange, New York, N. Y.

FLORENCE E. WALL, *Research Writer, Technical Publicity*, 345 East 68th Street, New York, N. Y.

M. G. WEBER, *Consulting Chemist*, P. O. Box 1251, Hendersonville, N. C.

SAMUEL M. WEISBERG, *Industrial Research Fellow*, 1403 Eutaw Place, Baltimore, Md.

DAVID WESSON, *Technical Adviser*, 111 S. Mountain Avenue, Montclair, N. J.

THOMAS A. WRIGHT, *Secretary and Technical Director*, Lucius Pitkin, Inc., 47 Fulton Street, New York, N. Y.

JAMES ANDERSON YATES, *Head of Department*, Chemical and Physical Sciences, Kansas State Teachers College, Pittsburg, Kansas.

EDITORIAL

Chemists' Catalog Company

IN this issue of THE CHEMIST there appears a review of the 1932 edition of the Chemical Engineering Catalog. The reviewer describes, among other departments of the book, a classified index of equipment and supplies (102 pages) and a classified index of chemicals and raw materials (82 pages).

Industry has long recognized the value of the Chemical Engineering Catalog. Why would it not value similarly a classified catalog of chemists?

There is now before the national council of the Institute a proposal to make one of the issues of THE CHEMIST a professional directory, in which the members of the Institute would be listed under their chemical specialties and fields of experience. Additional information about any chemist would be available, of course, at the Institute office. Distributed to chemical manufacturers and to other employers of chemists, such a volume would make it possible for a chemist to receive the kind of offers his experience and training qualify him to accept but which are not apt to come to him at the present time.

At the present time a chemist has no good way of seeking a better position. If he is capable of greater responsibilities, he must in most cases await an opening in his own company. He would be foolish to resign and gamble on getting another position. He is generally barred by his contract from accepting a position with a competing firm; and if he lets his company know that he is looking for an outside position of any sort, he is not apt to improve his relations with his employer. The consequence is that many chemists are in a state of virtual slavery—and the word "slavery" is not our own idea but is the expression used by a prominent American industrialist to describe the condition of the average employed chemist.

A manufacturer can go to the Green Book, to the Chemical Catalog, or to other directories to find out where to buy sulphonated oils, but he has no good way of reaching directly a competent chemist who knows how to manufacture sulphonated oils. Only a small fraction of the employed chemists will ever put their names on the lists of an employment bureau; and it is in normal times the employed chemist,

the man who is doing a good job but who is capable of filling a still bigger position, whom the chemical manufacturer wants.

An architect or a writer has his work publicly labeled. Any one who is looking for the sort of product he can produce knows about him and where to find him. This may be one of the reasons why a chemistry professor at a great university has been known to advise a student to become a writer rather than a chemist if he has any literary talent at all. A chemist works in obscurity, often on work which it would be impolitic to publish. He has only the possibility of an occasional patent to bring his name before the industry; and not all forms of chemical work result in patents.

A catalog listing all chemists, whether employed or not, would carry no stigma of inadaptability, chronic discontentedness, lack of ability, or any of the other unfavorable ideas associated, to an extent, at least, with registration in a commercial employment bureau.

The objection will probably be raised that the universities can take care of their men. Purdue is said to boast that no Purdue man is unemployed; but this commendable efficiency in making placements is certainly not general. In *Industrial and Engineering Chemistry* are want ads inserted by graduates of far more famous universities than Purdue—men who have Ph.D.'s and good records but who are unable to find jobs. Nothing could show more clearly the inefficiency of present employment methods than the fact that the *News Edition* open before us at the moment advertises only one "Situation Open," while a leaflet from a commercial employment bureau lists eight chemical jobs that are looking for men. These openings were advertised in the classified section of the *Herald Tribune*—a device which is a sufficient indictment of present intraprofessional means of finding a good man for a chemical job.

This is a subject upon which we should like to have discussion. If the Institute can perform a service by becoming a chemists' catalog company, it ought to begin at once the preparation of such an issue of THE CHEMIST.

Should Chemists Be Licensed?

What eighteen chemists think about licensing. Some objections. What licensing would do for chemists and for the Institute.

A NUMBER of the leading chemists of the country have been asked to express opinions on licensing; and their replies are printed herewith. Some have raised objections; others have not only approved the idea but have outlined machinery for putting licensing into operation.

Whatever the merits of the case, licensing is a question upon which the profession must make up its mind. Any move for installing a state system of licensing will probably come from the profession itself, if it comes at all. A chemist is not a necessity in the every-day life of every citizen, as a doctor is; and even great abuses of the title "chemist" are not likely to stir up any particular public indignation. For this reason, the first step is to find out what the chemists themselves think.

It is hoped that chemists who disagree with any of the ideas expressed will feel free to comment. These comments will be printed in a later issue of THE CHEMIST.

Yes

Irving Hochstadter, F.A.I.C., president and director of the Hochstadter Laboratories, Inc.:

It is, and always has been, my opinion that chemists should be licensed.

As I see it, there are three groups which have a pertinent interest in this question: The public, the chemical industry, and the chemical profession. The chemical profession, inchoate and disperse in its nature, needs both the protection and the unifying tendency which a properly developed licensing system would give it.

The public would benefit by the licensing of chemists in that it would be protected, as today it is not, from the imposition of any one who wishes to represent himself as a chemist. The lay group today has much difficulty in distinguishing, when seeking a chemist, between the pharmacist, the recent graduate, the experienced consultant, and the out-and-out faker. Only by a long educational campaign, or through the enforcement of a vigorous licensing law, will the public

ever be enlightened on this subject. In the writer's opinion, the licensing law would represent the quicker method of solution to this problem, where the public or the layman contacts with the chemist.

The chemical industry may feel selfishly that the licensing of chemists will raise the cost to it of an essential to its continued existence and progress, and may oppose such a licensing law. This opposition, the writer believes, is unjustified. The industry owes more to the profession than it can ever repay, and therefore the industry, in justice, should not oppose a benefit to the profession. Furthermore, such opposition on the part of industry would also be a mistaken position. A licensing law would tend to effect a raising of the standards of the profession, which ultimately would mean an improvement in the quality of the material from which industry must draw its personnel.

In summing up, I would therefore conclude that the interests of all three of the groups mentioned would be better served by the licensing of chemists. There is, however, the practical question of how such licensing can best be effected.

I personally believe that in those states where professional engineers are also licensed, it would be a wiser and easier undertaking to amend the existing licensing laws so that chemists would be included. It is always easier to amend laws than to secure the adoption of new ones; and there is sufficient similarity, both in the nature of the two professions of chemistry and engineering and in their personal methods of functioning, to make the assimilation fairly simple.

These last statements are based upon my own intimate experience, including almost ten years as a director of the New York State Society of Professional Engineers.

However, if this suggested procedure does not meet with the approval of the chemists, I would then suggest that by all means they proceed to raise the funds that would be required to procure the adoption of the necessary legislation to set up separate machinery for their own licensing.

Marston T. Bogert, F.A.I.C., professor of organic chemistry at Columbia University:

I am in favor of licensing chemists if a satisfactory plan can be worked out for accomplishing this, since I believe that the licensing of other professions has accomplished something in the direction of giving those professions a better standing in the eyes of the community and has secured the elimination of many fakers. In chemistry it

would, for example, immediately dissociate the professional chemist from the pharmacist who insists upon calling himself a "chemist."

Philip P. Gray, F.A.I.C., director of the department of chemistry, Pease Laboratories:

Of course chemists should be licensed.

There can be no real argument against it. Difference of opinion may arise as to detail: qualifications to be required of the licensee, whether the licenses are to be granted by a state board or by a professional committee sponsored by the Institute or some other professional body, whether by examination or otherwise. But basically, that some professional licensing system, modeled along the lines now followed in the case of the medical and legal profession, will raise chemistry as a profession to a position which it merits, there can be little doubt.

Properly understood, the question hardly has room for any negative argument. Certainly none can be mustered that can be given any serious weight from the chemist's own standpoint; and when we come to an examination of the professed aims and ideals of The American Institute of Chemists, no sound reason exists against the Institute's taking a determined and active stand in favor of legislation designed to bring about the establishment of a professional license for chemists.

We have had considerable discussion both in and outside Institute meetings on this question. The chief value to be derived from these discussions lies not so much in enabling us to formulate an answer to the question, "Should Chemists Be Licensed?" whether affirmative or negative, nor in crystallizing our thoughts as to the best possible way of bringing licensing about, nor even in arriving at details of licensing arrangements when the time comes and the Institute is called upon as the body representative of the professional interests of chemists to submit ideas to the legislature. These objects are, of course, valuable products of such discussions, but have only remote benefits. Our immediate need, however, is for a quickened interest by chemists generally in the Institute. And this brings me to the point that I desire especially to raise. Little can be gained in furthering the interests of the profession (and more particularly in furthering recognition of The American Institute of Chemists as the authorized spokesman of the profession) unless and until these discussions are exposed to view outside Institute affairs for the benefit and edification of non-members of the profession, and are continually kept exposed to such view.

What I wish to bring out is one aspect of this subject which has perhaps been overlooked, namely, that any publicity which would be directed toward the Institute in connection with the public advocacy by the Institute of legislation for the professional licensing of chemists would be valuable of itself, irrespective of the merits of the licensing question, in shaping non-member chemists' ideas of the Institute; secondly, such publicity would of itself to some extent tend to impress on the public that there is such a thing as a chemist, that he merits a high professional status, and that at present, in the absence of any standard of qualifications, the public must as a matter of self-protection examine beyond mere self-declaration in seeking the services of a chemist. There will be greater significance in the initials F.A.I.C. in the minds of the public as the idea entrenches itself that temporarily these initials are a symbol of approval of the qualifications of the chemist by the body of his own profession which is leading the fight for professional licensing. The layman will feel that in the interim he is safe if he choses a chemist possessing the right to use these initials.

For this reason, what is to my mind of greater immediate importance than a final determination of the question of licensing, not only in the professional interest of chemists but in strengthening the position of the Institute, is the taking of immediate steps which will place the Institute on record as advocating some form of licensing for chemists. This could be brought about by the appointment of a committee to confer with one or more favorably inclined members of the New York State Legislature to the end that a bill may be drafted and introduced in the coming session—a bill embodying the ideas of the Institute. Accompanying such action steps should be taken to secure as wide publicity as possible on the subject, in both technical and public press.

Of course chemists should be licensed, but whether we ultimately are or not, will we not gain immeasurably as a group in the course of the effort itself? Is there any reason why the Institute should not start things now and transfer the field of the discussions at once to where the greatest good to the profession can be accomplished?

D. L. Pinnock, F.A.I.C., chief chemist of Durkee Famous Foods: Licensing is the only salvation for the employed chemist, and it will help the consulting chemist as well. It is the only way in which the status of the chemist will ever be raised, and until licensing is

an accomplished fact, nothing of any help to the individual chemist can ever be done.

What is stopping us? Is it money? If so, let us concentrate on getting the necessary sum. It can be done if the will of the members is behind it.

Is it lack of conviction on the part of members of the Institute? If so, let us have the opportunity to convince those members who are opposed to licensing.

Mr. Wickenden's article "Why Not Now?" is a challenge and an inspiration to every Fellow of the Institute. We have procrastinated for nine years. Let us do something now, at once. Let us ballot on the question "Do we want a license for chemists?" If the result of this ballot is "Yes," we should bend every effort to accomplish what we desire. If the result is "No," we might as well wind up the affairs of the Institute and admit the failure of its most significant purpose, for which it was originally started.

The fight is not a hopeless one. The present status of the chemist is undefined, and cannot help but be improved by licensing. Now is the time, when employment is at such a low ebb, to take steps to help the employed (or would-be employed) chemist.

Jack P. Montgomery, F.A.I.C., professor of organic chemistry at the University of Alabama:

Chemists should be licensed, but not with demoralizing rapidity. Starting with great liberality toward those of proved performance, a professional basis of licensure can be developed upon a gradually increasing stricture in the important criteria of preparation, apprenticeship, and personal dependability.

Theodore Markovits, F.A.I.C., research director of the Hoffman Beverage Company:

The principal need for licensing is suggested by the popular misconceptions of the term chemist; and the fallacious definitions are attributable to some members of the profession itself—and to many quacks. Proper registration and licensing include a distinction between a competent responsible person and self-styled chemist.

Admission must be made that the proposal is a corrective measure, one of defense. There would be no need for any action if the professional organization had more interest in the execution than in the expression of ideals. Public professional condemnation by the chemical societies of dishonesty and malpractice would have pre-

vented many of the things that have taken place to the detriment of the chemical profession.

How must registration and licensing be done? It is evident that a young chemist can seldom discharge the duties of the equally well prepared and more experienced man.

My suggestions contain no element of novelty, and make provision for the person who has acquired his knowledge without benefit of a college degree. Let there be a board of four individuals for licensing and registration, three of whom are university professors, and one whose sole professional activity is in the industrial field. Three of the board can be chosen by impartial university presidents, and the representative from industry by the professional chemical societies.

Any graduate who has satisfied the professional requirements of a recognized college shall be registered and licensed to do subordinate work in chemistry until further experience and study make the applicant eligible to a higher grade.

An applicant who holds no degree from a recognized institution of learning can qualify for registration and licensing by submitting to an examination by the board of registration and licensing.

Any one who has been admitted to the lower grade, who has pursued further professional studies, or who has devoted a minimum of three years to original work, upon presentation of such evidence shall be eligible to the higher grade. The requirements for this rating shall be originality, proficiency, and ability to execute and interpret professional work.

Licensing to the highest grade shall be restricted to individuals of at least ten years of experience or study who have discharged executive duties and who have directed satisfactorily the work of others of a lower grade. Evidence submitted to the board must include eminent qualifications in at least one field of professional activity.

Any and all chemists who have performed either questionable or dishonest acts shall be ineligible to registration, or shall be subject to revocation of license. This fact shall be published in recognized professional publications.

F. T. Tyson, F.A.I.C., assistant professor of chemistry at Temple University:

The arguments which favor a licensing system for chemists are precisely those which have been compelling in the professions of medicine, law, dentistry, and pharmacy.

An immediate objective should be the licensing of all consultants

in the chemical field. This step would be definitely advantageous to the public interest as well as to the chemist's interest, since it would serve to distinguish the chemical consultant as one qualified by special training for his work. This is not the condition of affairs at present. Some assurance that the professional chemist is especially trained for his work is necessary before the public will take seriously the idea that the chemist practices a profession.

As a matter of fact, the trained chemist has invested much time and capital in the acquisition of necessary training. This investment is in every way favorably comparable to that necessary for training in other professions, which are protected by licensing systems. The activities of unqualified persons in the practice of chemistry should be restricted in the interests of both the public and the professional chemist; and an essential step in the development of chemists into an effective professional group will be the institution of a licensing system.

Bertram Feuer, F.A.I.C., bacteriologist of Bertram Feuer and Associates, consulting chemists:

From the vast amount of conversation, together with the several recent articles (particularly those of Wickenden and Gudeman), followed by the organized request for opinions to be contributed to a symposium, it appears that the licensing of chemists is truly an issue.

There is an undoubted need for some licensing procedure. To me, personally, the idea appears exceedingly favorable. On the other hand, methods of furthering this end are vague and difficult to formulate. As indicated by previous contributions, no one has offered a definite solution to the problem.

It is hardly necessary to urge further the desirability of promoting the so-called professional status of the chemist. Perhaps it is difficult to come to definite conclusions in regard to classification for the reason that chemistry is so widely diversified and interlinked with other sciences. It offers a complicated set-up for definition. By way of example, the case of an applicant for admission to The American Institute of Chemists is recalled. This particular application was rejected, due to the fact that the credentials of the applicant were questionable. Since the time of that application, certain contacts have been made with the applicant which reveal that his original training was in electrical engineering. After he entered that consulting field, it so happened that one of his first problems developed into a combination of electrical engineering and electrochemistry,

two fields so closely related that it is quite natural for such a situation to arise.

All credit should be given for the man's ability to adjust himself to circumstances and enter the field of electrochemistry. From that point on his activities partook more of chemistry than engineering. He re-entered academic work in order to improve his knowledge of chemistry. In spite of the fact that this chemical training was at a minimum, the man appears to have adapted himself well; but, on the other hand, in his attempt to convince himself, as well as others, of the extent of his chemical training, he imagined himself (as is often customary) the holder of an advanced degree from a European school. Fortunately The American Institute of Chemists discovered the dream about the European degree before acting upon his application. This man is an excellent example of the type of person who should not be permitted to humbug the public and industry under the guise of chemist.

In contrast to the above, we know of capable chemists who have had no academic training. Others have been trained in medicine and have chosen chemistry as their line of endeavor, in many instances with considerable credit to chemistry. Further, there are certain pharmacists, dentists, pathologists, zoologists, botanists, and possibly others who would really come within the category of chemist.

The example of the American Medical Association, with their proved method of definite classification for their members, may be well to follow; but their problem is considerably simpler than would be that of a chemical association. The first step toward the solution of the problem would be the definition of a chemist. The definition will probably incorporate certain qualifications required for the professional standing of a chemist. Whether some legal status can be obtained or not is a matter of question. However, The American Institute of Chemists would be in a position to form a committee of investigation. The Institute by publicity and contact could disseminate such information as may be required among commercial institutions and even among the public, to educate them to the fact that a chemist is one who possesses certain set qualifications. Moreover, a catalog of chemists could be made, embodying such details as may be necessary to show clearly the particular qualifications of each individual and to indicate whether or not his qualifications are above the minimum requirements.

A criticism of these suggestions may be that this is a duplication of the efforts of such publications as "American Men of Science,"

as well as the efforts of organizations which maintain specified requirements for admission to full membership or fellowship.

From previous experience it seems that as soon as discussion is brought about regarding the professional status of the chemist, every one is very well agreed upon the deplorability of the present conditions and the desirability of having a "status," but as yet no one has been able to devise a definite program for bringing about the desired end. The American Institute of Chemists, primarily organized for such purposes, should be in a position to carry the matter through. Possibly with this further exchange of opinion, a definite plan may result. It is quite likely that the development of a plan for such a purpose would result in widespread interest among chemists, and would thereby encourage increased membership in the Institute—a result which, of course, is quite important for the carrying out of the Institute's aims.

No

Charles L. Reese, retired chemical director of E. I. du Pont de Nemours:

I do not think chemists should be required to be licensed in the same sense the physicians (and I believe in some states chemical engineers) are required to take examinations for licenses.

I believe that chemists engaging in consulting practice probably have to be licensed for doing business in their community; but I do not believe that chemists who have degrees from reputable colleges and universities should be required to take out licenses for carrying on that profession, as physicians are. Their degrees should be sufficient evidence of their training and of their ability to carry on without interference from the state. Employers, certainly, would not need such guarantee as a license would give. They are very well able to select their men.

I am not a believer in increasing government regulations that are not necessary, as we are burdened with too much government regulation at present. This is supposed to be a free country; and although I recognize the importance of the licensing of physicians, I see no necessity for the application of this principle to chemists.

S. C. Lind, director of the school of chemistry, University of Minnesota:

Nothing in regard to the status of chemists has come under my observation which would lead me to think that licensing would be beneficial.

J. N. Taylor, F.A.I.C., of the chemical division of the U. S. Bureau of Foreign and Domestic Commerce:

As a general proposition it does not appear to be desirable to license chemists as is done in the professions of medicine, law, or architecture. Exceptions, however, should be made where chemists (such as consultants, etc.) come in touch with the public. In addition, there may also be included those chemists whose activities vitally affect the health and well-being of the public—namely, those concerned with foods and drugs.

A. C. Fieldner, chief engineer of the Experiment Station Division, U. S. Bureau of Mines:

I do not favor the licensing of chemists.

Frank G. Breyer, F.A.I.C., consulting engineer, and chairman of the Committee on Unemployment and Relief:

I am not in favor of a government licensing plan for chemists, whether it be federal, state, or municipal. When The Institute of Chemists becomes as important in the profession of chemistry as the Bar Association is to the legal profession, then a practicing chemist should be one who has passed The Institute of Chemists' examinations. Until such a time, licensing, in my opinion, would only confuse the situation; and even worse, it would get municipal, state, or federal politics mixed into the situation, which is highly undesirable.

Donald B. Keyes, F.A.I.C., professor of industrial chemistry, University of Illinois:

Unless the chemist is going to come in contact with the public and work for the public, I see no particular advantage in licensing a chemist. On the other hand, I see no particular objection.

David Wesson, F.A.I.C., technical adviser to the Southern Cotton Oil Company:

There is no question but that chemists should be registered as graduates of institutions of learning which are endorsed by the various chemical societies of our country. Their names should also appear on the membership lists of the leading chemical societies to which they should belong. As for compelling chemists to take out a license from the government of the states in which they reside and in which they practice their profession, it would appear an unnecessary complication of the laws on our statute books, which are altogether too many now for the good of our country.

The idea that a chemist, operating under license, is going to be better qualified to do honest scientific work than one who has taken his degree and has been doing such work throughout his career, seems quite erroneous. The theory that a political body, by issuing a license for a specified fee, can confer professional ability and powers on a man is all nonsense.

The writer once held a position in a company where a number of chemists were needed. A high executive officer of the company appointed young men belonging to indigent but otherwise worthy families and conferred upon them the title of chemists, and expected them to function accordingly. They made analyses, and sent out reports signed "chemists." Does anybody for an instant suppose that these so-called chemists would have functioned any better if they had been registered and secured state licenses.

The writer, in the course of his experience, has run across men with all the necessary educational qualifications and experience but who committed acts unworthy of reputable citizens. Does anybody suppose that if they had obtained licenses to practice the art of chemistry, that they would have been any more worthy than they were without licenses. It would seem that the whole matter in the final analysis would come to a question of personal character and integrity. If the people who want chemists to be licensed feel that the public should be protected against charlatans, why should they not go a little further and see to it that men desiring positions as legislators or other political officers be properly licensed, and pay for being allowed to practice the gentle art of politics.

Personally, I occasionally need the services of a plumber, who, under the laws of the community, must operate under a license. A recent experience has shown me that a license under which a plumber operates is no guarantee whatever of properly done work or of an honest bill.

No amount of licensing, in my opinion, would make a good chemist if he has not the education and character back of it. Our profession has trouble enough these days without being put to the necessity of taking out licenses. We have enough taxes without any added ones. The writer fails to see how a chemist who is compelled to pay a license fee is going to be any better off or have any higher standing in his profession than properly recognized chemists have under our present conditions.

William Foster, F.A.I.C., professor of chemistry at Princeton:
I am inclined to think that the licensing of chemists would be a

good deal of a nuisance. It seems to me that the degrees of educational institutions are sufficient; and the keen competition of the future will do a great deal to regulate matters. A chemical question is not a matter of life or death, as is so often the case when a doctor is called in.

Edward Bartow, head of the department of chemistry and chemical engineering at the State University of Iowa:

Licensing of chemists would place a burden on the large majority of practicing chemists and make it difficult for a chemist whose principal business is in other than consulting lines to give advice on a problem. The protection against untrained chemists would not be worth the trouble which would be imposed upon the large majority.

Oliver Kamm, scientific director of the research laboratories of Parke, Davis, & Company:

In England the term "*chemist*" refers to the pharmacist. (Just what a *chemist* is called is not exactly clear.) Naturally, in England the "chemist" is licensed, as the pharmacist is here in America. The situation there is as unsatisfactory as the confusion between the various types of doctors in this country. The medical doctor at times resents the fact that there are doctors of dentistry, veterinarian doctors, and even doctors of science, divinity, and philosophy.

We need to license lawyers, doctors, pharmacists, and all others who deal directly with the public and who can cause irreparable harm if they are not professionally responsible. Other classes, including bankers and brokers, ought to be doubly licensed. But the chemist, it seems to me, is outside the pale of this necessity, since he serves the human race indirectly; in fact, with the exception of one or two per cent, all the chemists in the United States are contributing directly to some institution, usually serving a single employer for years.

Thus the responsibility for the chemist, in contrast to most other professions, is carried in large measure by his employer. For obvious reasons the employer does not take this responsibility lightly, and the result is an automatic elimination of the incapable worker.

I believe the licensing of chemists would be a superfluous measure.

Research on Farm Crops

Bureau of Chemistry and Soils seeks more uses, continues national soil survey, studies fertilizers, Dr. Henry G. Knight reports.

RECOGNIZING the limits to human consumption of food, but seeing practically an unlimited field for farm products when they are converted into industrial materials, the Bureau of Chemistry and Soils has concentrated its farm crop research upon the fifteen most valuable crops of the country, to find new uses for them not only as food but industrially, Dr. Henry G. Knight, chief of the bureau, says in his annual report to Secretary of Agriculture Hyde.

HENRY G. KNIGHT

The fifteen crops in order of their value are: corn, hay, cotton, wheat, oats, potatoes, tobacco, oranges, barley, apples, sugar beets, tomatoes, dry beans, grapefruit, and sweet potatoes.

The bureau applies scientific research to problems directly affecting the prosperity of American agriculture. These include: land classification, soil erosion, soil fertility, profitable use of farm waste and surpluses, better adaptation of farm products to market or industrial requirements, development of uses for new plants, discovery of new uses for minor crops to replace overproduced crops, development and use of domestic agricultural products in place of agricultural imports, and protection of farm products and property from loss and destruction.

Some of the important researches of the bureau are:

Corn.—Industrial uses of by-products. Manufacture of starch, sirup, and oil.

Hay.—Methods for reducing the annual loss of $80,000,000 caused by spontaneous ignition and by spoilage from rain.

Cotton.—Fertilizer and cropping studies. Work on the composition and uses of cottonseed. Insecticides for boll weevil control. Cotton products studies. Prevention of soil erosion.

Wheat.—Studies of food value. Increasing the protein content.

Improving the baking quality of flour. Straw for fiber production. Prevention of spoilage of wheat products.

Oats.—Study of food value. Industrial uses for oat hulls and straw.

Potatoes.—Use of surplus and cull potatoes for starch. Use of potato flour and starch in commercial baking. Fertilizer studies.

Tobacco.—Nicotine as an insecticide. New controls for insects. Preservation of shade cloth coverings for tobacco.

Oranges.—New uses for cull and surplus oranges. Effect of freezing and drying on chemical composition. Vitamin content. Coloring. Insect control. Fertilizer studies.

Barley.—Chemical investigations of American barleys and malts. Study of pearling barley.

Apples.—Use of pomace and apple waste. Apple drying. Vinegar and cider studies. Insecticide work. Making of ursolic acid from apple skins for use in varnish making. Soil studies.

Sugar beets.—Fertilizer studies. Chemical studies on sugar content. Uses for beet residues.

Tomatoes.—Improvements in canning and using tomatoes. Making tomato-seed oil. Vitamin and fertilizer studies.

Dry beans.—Food value of bean proteins. Use of bean flour.

Grapefruit.—Uses for cull and surplus grapefruit. Canning. Maturity standards.

Sweet potatoes.—Use of culls and surplus potatoes for starch. Use in malt sirup manufacture. Fertilizer studies.

Besides these 15 main crops Dr. Knight mentions others on which the bureau works, crops which were valued in 1930 at $225,000,000. These include peaches, lemons, rice, peanuts, soybeans, honey, cane and maple sugar, cane, maple, and sorghum sirups.

The work of the bureau is done by three units, working on chemical and technological research, soil investigations, and fertilizer and fixed nitrogen investigations.

Chemical Research

Bureau chemists during the year studied sugar cane and the effect of fertilizer and variety on sugar quality. They further investigated the possibilities of the milk sugar which is found in sweet and sour whey, now largely wasted. A new method was found for clarifying honey. Further studies were made on the inulin* found in chicory root and believed beneficial for diabetics.

* Inulin is correct—not insulin.

The bureau developed a method of freezing fruit pulps to preserve them for several months, and found little danger of botulism if the frozen food is used at once after defrosting. In cooperation with Stanford University the bureau began pharmacological food studies on the acute and chronic intoxications that may result from eating food contaminated with insecticides, food preservatives, and the metals which occur naturally or are introduced by canning or cooking. Experiments on oil-bearing foods showed that keeping them in grass-green paper or glass containers prevents their becoming rancid.

At the farm waste field station at Ames, Iowa, chemists experimented with corn cobs, wheat straw, and other farm wastes. Proteins of cereals, soybeans, sugar cane juice, fruit juices, and cottonseed meal were studied. During the time the bureau has worked on dust explosions, losses from this cause in establishments processing agricultural products have shown a marked decline.

Bureau chemists have discovered an economical method by which bagasse, a sugar-cane waste, can be made into high quality cellulose, suitable for rayon. Lignin, which makes up about 30 per cent of the dry material in all vegetation, was found to contain compounds such as phenol, cresol, and others. Bureau workers also determined the definite chemical structure of rotenone, a tropical substance harmless to men and animals but valuable as an insecticide. With this knowledge synthetic production of rotenone is possible.

Soil and Nitrogen Investigations

Detailed soil surveys covering a total area of 30,569 square miles were carried on in 29 states and in Puerto Rico. Reconnaissance surveys covering 7455 square miles were made in Montana and Minnesota.

The fertilizer and fixed nitrogen investigations unit seeks to develop promising new processes, to improve the old methods, to produce new materials, to investigate various raw materials, and to examine and determine the properties of new products suggested for fertilizers. The report says the time has already arrived when no foreign group can dictate fertilizer prices to American producers. In the United States agriculture uses three times as much nitrogen as do all other industries.

During the year the bureau also concentrated efforts on extracting potash from the potash silicates occurring in abundance within the United States. A detailed study of the chemical composition of domestic phosphate rock was completed, and further studies were made with mixed fertilizers.

The Chemist and the New Trend in Purchasing

By A. X. Schmidt

A place where chemists are needed. Mechanics of purchasing control. An economically sound branch of the profession.

FEW chemists today are definitely conscious of the extensive changes taking place in the business of purchasing; nor do they realize just where and how they can fit into the picture as technical men specializing in purchasing problems. It is the purpose of this article to present a general view of the current trend, with the hope of arousing members of the profession to the possibilities latent in the situation. There are positions of vital importance begging to be created if employers and chemists will but appreciate the savings that can be effected by the technical man who specializes in purchasing.

For some ten or fifteen years industry has given itself over to an exhaustive development of production, distribution, and operating efficiency. The results have been eminently satisfactory and for the progressive firm have born fruit in the form of distinct economies.

During the same period, we find that purchasing has been subjected to comparatively little of the same critical approach; this in spite of the fact that in many businesses material costs run from 35% to 60% of total gross receipts. Owing to the fact that cost of raw materials is largely predetermined before delivery, this large item has received minor attention, while lesser items of the cost sheet have been torn wide open to see what makes them tick. Rather, there has existed a tendency to regard material cost as something out of hand over which little control could be exercised.

Of recent years, however, the urge toward a more highly developed purchasing technique has been gathering impetus. The movement has expressed itself in many directions. We find an increasing interest in standardization, simplified trade practice, and purchase of materials on definite specification. We find increased activity in the splendid work conducted by the American Standards Association. We find one of our largest department stores establishing a private bureau of standards. In Consumers' Research, Incorporated, we have what amounts to a consulting service to consumers at large. We see cooperative buying and retailing organizations being formed not only to take advantage of large volume as a purchasing whip, but to enable its members to receive the benefit of technical control, which, as individuals, they could not afford.

Co-Workers of Modern Purchasing Department

The alert business executive of today recognizes the vital necessity for three distinct individuals in his purchasing department: the actual buyer or purchasing agent, the technical man, and the economist. We are speaking primarily of business where the number of different items purchased runs high. It is the part of the technical man to arm the buyer with the necessary scientific facts back of the purchase, and it is the duty of the economist, through market studies, to keep the buyer posted on the influences affecting the price of the material. This leaves the buyer free to perform his true function, which is that of the trader. The efficient purchasing department of today is organized and functions as depicted in Figure 1.

Here is a tremendous field. We can see the importance and place of the chemist. Business is becoming aware of the potentialities and is in a receptive mood. It will pay the chemist to direct his efforts into this field. How? Let us see what he has to offer.

We shall assume that a chemist enters the purchasing department as technical adviser in an organization that previously has had no technical control over its buying. He brings with him his specialized knowledge and technical viewpoint. He must also bring with him breadth of vision and the ability to speak in terms readily understandable to the layman. He must have the vision to project himself into the businesses and viewpoint of vendors and must never lose sight of the fact that one of his most important duties is that of playing the part of interpreter between the buyers within his organization and the vendors without. If he pictures his job merely as that of control chemist or laboratory

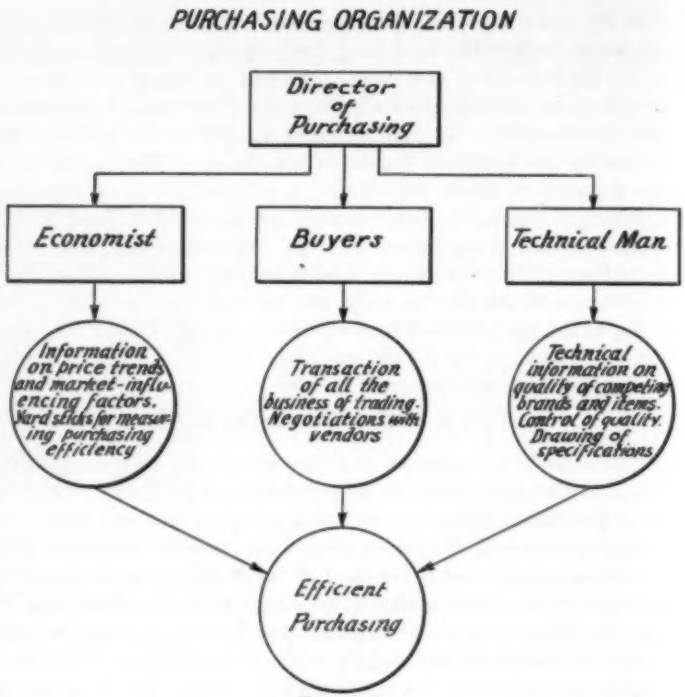

FIGURE 1

worker, he will fall far short in his achievements as a technical man specializing in purchasing problems.

His duties fall under two main headings, which we shall call direct and indirect functions. Under direct functions he must consider quality control over goods purchased, education of purchasing agents to the technical side of buying, and education of vendors to a more concise understanding of the requirements of his company. The indirect functions will embrace work of an experimental nature, such as the investigation of new products and the determination of new uses for established products. On certain items he will find it necessary to investigate the relative desirability of home manufacture versus purchase from outside sources.

If he is working in a restaurant organization he will find a tremendous number of items being bought, food products alone running over 500. Of these, a comparatively limited list of commodities account for fully

half the cash expenditure. These major commodities he will single out for immediate attention.

In properly approaching his problem his first step will be to subdivide the entire list of problems purchased into commodity groups offering similar quality control problems. Under separate headings he will have highly perishable fresh fruits and vegetables, meats and fish, canned goods, dried fruits and vegetables, milk and cream, etc. Each group will confront him with separate and distinct problems of quality control. The layman buyer may not be fully aware of the pertinent classification of commodities under such a system. He is more likely to associate commodities in accordance with sources of supply. The chemist must apprize the buyer of this classification and tell him in readily understandable language of the factors of quality and problems of control common to each group.

Having thus classified all the commodities purchased, his next step will be that of establishing his quality control system. This he must effect by successive well-defined steps. Singling out any specific commodity, his first problem is that of measuring correctly the company's requirements. This step is of extreme importance, and requires careful examination of the properties and characteristics the material should have in order to perform its function. These are its criteria of quality.

Having established these criteria of quality, the next step is the expression of the company's requirements in the form of specifications drawn as simply as possible. The specification is of utmost importance, since it is the word picture of the material desired. It is in accordance with this picture that vendors will supply the material. At one and the same time it must be concise and simple. Too much stress cannot be laid on simplicity. Lengthy and elaborate methods of analysis and test should be avoided wherever possible, so that results of control work may be arrived at quickly and cheaply.

The third step in the process is surveying the market for the material under consideration. This is effected by analyzing or testing samples from the several vendors to see whether they conform to the company's requirements as expressed in the specification. This survey will show which samples meet the specification and which do not. They can then be rated for comparative quality. The quality ratings can finally be collated with prices and the best purchase selected on the basis of quality and price, the two determining factors in any purchase.

The final step in the program is that of control analysis. Deliveries must be tested to see that they conform to specification and to the sample originally submitted by the vendor.

So much for the mechanics of quality control. While it is being built up, the chemist must simultaneously educate the buyers by informing them of the factors of quality involved in the purchase of the different items, showing them what to look for, how to use technical control and information, and where to find auxiliary technical assistance.

For instance, it is not enough for the chemist to tell the layman buyer that maple syrup should contain not more than 35% moisture. He must tell the buyer that if this figure for moisture content is exceeded, maple syrup is likely to spoil by fermentation. The above is a homely example but it is indicative of the educational program to be followed. This information on factors of quality should be presented in the form of written reports, so that as time goes on, the buyer has at his command what amounts to a manual of purchasing technique. As he educates the buyer within his organization, so also must he educate the vendor to a more complete understanding of what is required and expected of him. He must act as interpreter between the two. This he does through fact and more fact, which he substitutes for sales talk as a sounder basis on which to trade.

It would of course be impossible for the chemist to perform all the control work necessary on the many items under consideration. Even a sizable staff of laboratory workers under his direction would have difficulty covering the ground. For the foods, fortunately, he can avail himself of the services of duly appointed government inspectors. These men are trained specialists in their respective fields and will inspect meats, dairy products, fruits, and vegetables for conformance to specifications. Furthermore, they will perform this work at almost any place desired and at very reasonable cost. Other such very valuable technical services are available, and the purchasing chemist must unearth them and permit his company to derive the benefits inherent in them. Finally, wherever possible, the purchasing chemist places the details and burden of control analysis with the vendor, where it belongs; at the same time arranging that such analysis be made in accordance with his cooperative suggestions and be subject to check-up at any time.

The Ultimate Influence of Technical Control

The chemist entering the field as a specialist in purchasing problems can rest assured of the economic soundness of his activities. Scientific purchasing enables the buyer to choose his material on the basis of quality as determined by impartial analysis and price as expressed through competitive bids. By finding out for himself through the

medium of his technical adviser which products meet his quality standards and which do not, the buyer eliminates the necessity for heavy sales and advertising costs by which in our present scheme of things the seller attempts to establish the quality of his product. The buyer reduces the competitive field to an analysis on the basis of hard fact and cold cash. If we trace back far enough we find that scientific purchasing draws its economic strength from several main sources:

1. It eliminates the necessity for heavy sales and advertising costs.
2. It directs purchasing orders to the efficient vendor and diverts them from the weak sister.
3. By bringing both buyer and vendor to a more concise knowledge of what is wanted it cuts manufacturing costs by directing production toward more desirable items and away from less desirable ones.

We referred briefly to the necessity for three co-workers in the modern purchasing department: the buyer or actual trader, the economist, and the technical man. Recognition of the functions of this purchasing trio and recognition of the vital necessity of such a trio is awakening business management to the tremendous potentialities of a more scientific technique. More method, more measurement, and less conversation offer the only true solution to the purchasing bugaboo.

The hit-or-miss procedures so common in the past are rapidly going into the discard. To the progressive business concern the new purchasing technique holds forth the reward of extensive savings. To the chemist the activities of the purchasing department offer a fascinating field for specialization.

New Program

One of our oldest industries emphasizes systematized scientific investigations. Excerpts from reports and speeches presented at the annual meeting of the U. S. Institute for Textile Research.

THE third annual meeting of the U. S. Institute for Textile Research at the Barbizon-Plaza Hotel, New York City, Thursday, November 3rd, was attended by some 50 members and guests, representative of all branches of the industry. The main feature of the speaking program, following the luncheon and business sessions, was reports as to the substantial progress in scientific and economic textile research in this country. Franklin W. Hobbs, chairman of The Textile Foundation, reported on the 20 studies that are in progress under grants of that body; Prof. Louis A. Olney, a member of the U. S. Institute's research committee and chairman of the research committee of the American Association of Textile Chemists and Colorists, spoke of work in progress and recently completed by the latter association; Paul T. Cherington of the Institute's committee on economic research reviewed the latter's work and outlined economic trends in the industry; Dr. W. E. Emley, chairman of the Institute's research committee, reported for that organization and also for the Bureau of Standards, in his capacity as chief of its organic and fibrous materials division.

President Garvan in his brief introductory remarks stated that research into consumer's welfare and needs is just as necessary for the textile industry as scientific research in fibers and processes, that we now have in this country a homogeneous and educated consuming body that will not be satisfied with specious arguments but requires that theories and products be based upon scientific research.

The first and principal speaker was Dr. E. B. Millard, professor of theoretical chemistry and assistant director of the department of industrial cooperation of Massachusetts Institute of Technology, whose subject was "What Organized Scientific Research Can Do for the Textile Industry." A large part of Dr. Millard's address was a severe criticism of the textile industry for its backwardness in its support and utilization of scientific research. Another speaker whose remarks received careful and interested attention was Dr. H. DeWitt Smith of the A. M.

Tenney Associates, New York, N. Y., who reported on the colloidal aspects of Textile Chemistry as presented at the recent meeting in England of the Faraday Society. The program committee was William W. Buffum, Dr. W. E. Emley, and Secretary Clark.

Report of Executive Committee*

AMONG the accomplishments of our second year the following warrant mention:

1. The willingness of the Hon. Francis P. Garvan to accept the responsibilities of the presidency of the U. S. Institute, and to give us in addition to his valued services those of Mr. William W. Buffum, treasurer of The Chemical Foundation, as his active representative in the U. S. Institute.

2. An increase in membership as of September 28th to a total of 385, this comparing with 136 at the close of the 1930–31 fiscal year.

3. The publication of "Textile Research; a Survey of Progress," a volume of 286 pages which reflects great credit upon its contributors, cooperators, and the committee on abstracts and bibliography that had charge of its compilation. It is hoped that it may prove even more effective as a promoter of research-mindedness among textile men than as a mere record of textile research progress.

4. The authorization of the publication in printed form of a monthly magazine, *Textile Research*, succeeding the old mimeographed bulletin, and making possible a more adequate service to members and the industry, and a product more in keeping with its subject matter.

5. The preliminary report of the committee on economic research, which has won the praise of many leading manufacturers, merchants, and economists, and has as its objective a program of studies of the industry's most pressing and vital economic problems. . . .

FOR prevailing upon the Hon. Francis P. Garvan to add to his duties as president of The Chemical Foundation and to his multitudinous other services for mankind the presidency of the U. S. Institute, we are indebted to Dr. E. H. Killheffer, director and member of the executive committee. He made known his success at the meeting of the directors January 22nd; and it is hardly necessary to quote the records of that meeting to prove that election was by a unanimous vote.

* Presented at the annual meeting of the U. S. Institute for Textile Research, New York City, November 3, 1932.

Mr. Garvan's induction into office occurred at the meeting of the corporation in his honor in New York, May 4th, which was participated in by the presidents of the leading textile associations, by leading research authorities, and by other notable men. We should like to recount here the many services that our president has performed for the U. S. Institute in the few months that he has held the office; but in deference to his emphatically expressed wishes, we are not only prohibited from adopting a formal vote of thanks for them, but have also been warned not to spread upon the minutes of our meetings record of certain of his most valuable services. Bearing these prohibitions in mind, the members of the U. S. Institute will make no mistake in awarding him credit for all unidentified services.

By vote of the executive committee, September 28th, the publication of a printed monthly magazine under the title *Textile Research* was authorized, this action being made possible by the offer of Mr. William W. Buffum, treasurer of The Chemical Foundation, to have that organization guarantee the U. S. Institute against loss due to any expense involved in excess of the cost of the old mimeographed bulletin.

You have already seen the first issue of 76 pages and 1000 copies and will find it largely self-explanatory of the objectives and hopes of the editors and publishers. This, like the U. S. Institute itself, is a cooperative proposition and cannot prove the success it should unless it has the hearty cooperation of every member. Members receive a copy at no extra expense, $2.00 of their dues being applied to the cost of subscription, while the annual subscription rate for non-members is $3.00. . . .

President's Remarks*

By Francis P. Garvan

YOU are here today to discuss the question of scientific research and its situation in reference to the textile industry; but I just want to ask you one thing and that is to consider also research into the welfare of your consumer. That, to my mind, is just as much a scientific necessity today as your other scientific inquiries. The question of whether he is able to buy, whether he is able to get credit, whether he has employment, and the other questions which face us today I believe should become a part of your investigations and should be set forth in articles in your magazine.

* A speech delivered at the annual meeting of the U. S. Institute for Textile Research, in New York City on November 3, 1932.

We face today a great conflict between two theories: shall every government or every people become self-contained, or shall we become great in international trade? That, I think, is a subject for scientific investigation by you manufacturers, because it involves the welfare of your consumers.

The question of credit is to my mind the most important one in the solution of our present panic. There is no credit in this country today for the ultimate consumer. The international foreign bankers in control of the great banks of New York and through those great banks in control of the 20,000 banks throughout the country are shivering with fear from the effects of their having become the siphons by which our earnings and our savings have been squirted abroad; and they sit today hoarding the credit resources of the country against the day when they may be called upon to call their foreign loan losses. The result has been each day an increased denial of credit to the consumer of your products.

FRANCIS P. GARVAN

All these questions are questions which come down to an answer to the question of what price foreign trade? Foreign trade is a good thing. No one can gainsay that. In 1929 we exported eight or ten per cent of our production. That was a good thing, but nobody has ever researched into what price we paid for that export. We have got to become a nation of people asking not only whether a thing is good or bad but at what price we obtain it. We have a nation now of 120,000,000 consumers. They are very rapidly, since the cessation of immigration, becoming a homogeneous people. The German-American or the Irish-American or the Italian-American is a thing of the past.

In addition, we are rapidly becoming a nation of educated people. When I attended high school in 1890, I was one of ten per cent of the boys and girls of America who were given the advantage of a high school education. Today over 60 per cent of our boys and girls have that education. When I went to Yale College, I was one of less than one per cent of the boys and girls of America that were given that advantage. Today over ten per cent of our people are college educated.

That means an entirely different consuming body, a body that will not be satisfied with specious arguments but will require that when you come to them you come to them with theories based upon scientific research. I think that all of us are too ready to adopt slogans prepared for

us by the parasites of our business and the parasites of our banking and the parasites of our educational life. After this campaign we ought to set aside politics for a while and begin to discuss the actual conditions which have brought us into this panic and the way which we are bound to find to work ourselves out.

What Research Can Do*

By E. B. Millard

ALTHOUGH textile science has not yet reached maturity, one of the strongest indications of its advance has been the fall in caste of the "trade secret," which upon examination is quite as likely to be a cause for blushing at our ignorance as it is to be a matter of value. To a large degree, this change in attitude has come about as the result of research; of persistently inquiring How? or Why? or How Fast? or "How Come?"

The remedy for the present inferiority of textile research accomplishments in comparison with achievements in the chemical, petroleum, electrical, and other large industries lies along the paths already indicated by your report of progress (the U. S. Institute's new book entitled "Textile Research: A Survey of Progress") but at considerable distances down those paths. One of the chief requisites would seem to be much larger appropriations toward the support of research by the whole industry. We often cherish the fruits of our own labors more than we do the free gifts of the gods. A very small contribution on a percentage basis by all of the textile manufacturers would provide a huge sum for scientific research. While many will be frightened at the prospect of any further levies or taxes against the industry for any purpose, could money be used for a better purpose than providing life blood? Obsolete machinery of however great beauty, or the newest machinery for making a fabric nobody wants, are unpleasant to our thought; but if by research we do not keep ahead of the times, we shall have both. The New England specialist in horse blankets of twenty years ago probably did not begin research on motor robes when the Selden automobile patents were first issued, but when there was no longer any market for horse blankets.

While comparisons of our achievements with those of others are usually unpleasant, it may not be idle to point out that the British textile industry and the British government have subsidized with large sums of money a vastly broader program of fundamental research in England

* An address delivered at the annual meeting of the U. S. Institute for Textile Research, November 3, 1932.

than has been attempted here. Under the guidance and the inspiration of competent leaders, who do not insist upon being called directors, many scientists are carrying on the work at a satisfactory rate. Trouble-shooting for individual mills is excluded entirely from these laboratories, and only an intensive study of new material for the textile industries is carried on. We have nothing approaching it in this country, and the ratio of their expenditures on science to ours would bear the relation of a good salary to carfare.

ONCE an enthusiasm for research is born, its greatest peril is in wishing to accomplish too much too soon; and we must guard against this quite as much as against doing too little hurriedly. Only persons of great vision and the broadest possible education should be allowed to select the problems to be studied. One of moderate capacity might reject important clues or even great discoveries on account of his inability to sense their significance, and he might urge the study of trivialities or his hobbies at great length. If Roentgen had set out to give direct help to the medical profession with the greatest invention of all time, it is exceedingly improbable that he would have been working with the materials which led to his discovery of X-rays. Moreover, if there had been a person of less perspicacity than Roentgen doing the work, his first observation of the effects of X-rays might have brought out a new profane word to indicate that his photographic plate supply had been spoiled, and there the matter might have ended. Suppose the experiment upon which he was working had been performed many times before by many people with something like the same chance of seeing all that Roentgen observed. Indeed, unquestionable records show that X-rays had been produced by experimental means one hundred and ten years before they were discovered, and that in the interval their effects had escaped observation times without number.

Who knows whether some discovery of as great importance now lies in plain sight in our work, waiting for a man whose eyes can see it? Suppose you yourself had found Roentgen in your textile laboratory, with some wires and glass tubes, fussing around an induction coil in a room darkened at mid-day. Would you have allowed him to continue until he discovered X-rays; or feeling sure that forty years might elapse before they could prove their usefulness in textiles, would you have ordered him back to his twist counter? The problem, of course, is to know who is a potential Roentgen and who is not. But if the electrical engineers can find and assist Steinmetz, or Whitney, or Langmuir; and the medical research institutes can cherish Noguchi and Carrell, need we despair

at the prospect of finding one such genius for our own work, and of doing as much for him? What would we not give to have him now developed, ready to guide and inspire the research workers engaged on our problems?

The vast spread of the textile industry over the continent, with a mill in almost every village, makes coordination of effort to a very highest degree the vital need, the essential link without which we fail. For, without coordination, millions of dollars, or millions of men, or even millions of years may be squandered in spinning thin uneven threads or twists of fact; some of value, many of none at all.

Research in Progress and Planned*

By Franklin W. Hobbs

IN ALL branches of the textile industry there is a growing appreciation of the close relationship between research and the ever-changing problems of production. As an indication of the country-wide interest in our plan, I may state that there were nearly seven hundred fellowship applicants from thirty-nine states. It is also of interest to tell you that those to whom awards were made are now carrying on their work at the University of Illinois, Massachusetts Institute of Technology, Lehigh, University of North Carolina, Alabama Polytechnic Institute, Clemson Agricultural College, Princeton, Cornell, Harvard, Georgia Tech., Dickinson College, North Carolina State College, Manchester University, and University of London, England.

The men are all at work, but fundamental research of the sort that is being carried on requires a good deal of preparation and study of existing knowledge of the problems in hand. Therefore we cannot expect and have not as yet received reports of a type that might be suitable for report and discussion at this time, although I can assure you good progress is being made. The subjects investigated at some of the colleges are:

Princeton (under Dr. Taylor): "Protective Effects in Textile Deterioration and Dye Fastnesses." The habits of the oxygen atom are also under consideration.

Cornell: "The Application of Polarized Light to Textile Research."

Manchester, England: "The Orientation of the Constituents of the Benzene Ring."

* A report by the chairman of the Textile Foundation on the research of the Foundation. Read at the annual meeting of the U. S. Institute for Textile Research, November 3, 1932.

North Carolina: "The Disposal and Recovery of Textile Waste."

Massachusetts Institute of Technology: I. "Microbiology of Textile Fibers." II. "Microanalysis of Fibers." III. "Spectrophotometric Analysis of Dyed Materials."

Harvard: "Elastic and Plastic Properties of Textile Fibers."

The above will give you a general idea of some of the work that is under way, but, as I have said, it is too soon to make any definite report. I am sure definite results of this research work will come later and will be of great practical value to the textile industry.

Positions Open

TWO commercial employment bureaus are furnishing THE CHEMIST with details of their requests for chemists. We shall be glad to forward to these bureaus any applications sent in to this office.

4TS Physicist. Post-graduate training preferred. Heavy chemical manufacturing and research experience. Salary open, depending on background.

2TS Ph.D. Recent graduate. Thesis must have been in organic synthesis other than biochemistry. Location eastern United States. Salary $3000.

4ES Chemist. Experienced in formulating paints and varnishes. Salary $3000.

2ES Chemical Engineer with paper board plant and laboratory experience. Salary open.

3ES Chemist with pectin experience. Salary high.

Nobel Prize Winner

The greatest honor in chemistry is awarded to an American for the first time since 1914. The record of Irving Langmuir.

THE Nobel award in chemistry for 1932, the greatest recognition that any scientist can receive, will be presented to Dr. Irving Langmuir, associate director of the General Electric Research Laboratory, in Stockholm on December 10th.

Dr. Langmuir is the second American chemist to be honored by the Swedish Academy of Science in 31 years. Dr. T. W. Richards, professor of physical chemistry at Harvard, was the only other American so honored (in 1914). Other nations have produced winners in chemistry more frequently since the various Nobel prizes were created by the will of the late Alfred B. Nobel, Swedish scientist. Germany has seen fourteen of her scientific men thus honored; England, five; France, four; Sweden, three; and Switzerland, Austria, and Denmark, each one.

To Dr. Langmuir the Nobel award is a distinctive honor among many previous honors. He has won the Nichols medal, twice awarded to him by the New York section of the American Chemical Society—in 1915 for his work on chemical reactions at low pressures, and in 1920 for his work on atomic structure. He received in 1918 the Hughes medal from the Royal Society of London in recognition of his researches in molecular physics. The American Academy of Arts and Sciences in 1920 awarded him the Rumford medal for his thermionic researches and his gas-filled incandescent lamp. The Royal Academy of Lincei, at Rome, Italy, in 1925 bestowed upon him the Cannizaro prize; in 1928 he was recipient of the Perkins medal; and in 1930 the Chandler medal. This year *Popular Science Monthly* awarded him its annual medal and honorarium of $10,000 as an American who has done notable scientific work.

He is a past-president of the American Chemical Society, is a member of various scientific societies, and has received numerous honorary degrees.

DR. LANGMUIR became affiliated with the General Electric research laboratory in 1909. His achievement which stands first in chronological order is also regarded as the most significant in a practical sense: the development of the high-intensity incandescent lamp, the bulb of which contains small quantities of either nitrogen or argon. This discovery made possible immense savings to the American people in the cost of electric lighting. More than half the electric current utilized for light is consumed in high-intensity illumination, and the cost of energy thus applied was reduced 50 per cent by Langmuir's gas-filled lamp. The saving in terms of cash amounts to a million dollars a night.

Growing out of his work with the incandescent lamp came momentous discoveries affecting the then new and somewhat immature vacuum tube. Langmuir's discoveries produced vacuum tubes far more powerful and effective than any previously known, and made possible the vast development of radio broadcasting as well as the entry of the vacuum tube, through the work of others, into electrical control operations and other fields.

Equally important was his discovery of the new process of electric welding by the atomic hydrogen method. This process permits the welding of metals which formerly could not be joined, and the welds are of the highest quality, without the slightest trace of oxidation. The method consists of the passage of a stream of hydrogen through an electric arc, the heat of the arc disintegrating the hydrogen molecules into atoms, which recombine beyond the arc into molecules, and in so doing liberate an enormous heat.

These achievements have been of immeasurable benefit to the people of the United States. Scientists, moreover, consider that his many published papers are even more important. They provide a foundation upon which he and others can build in forging still further along the road of progress.

Dr. Langmuir has been particularly interested in the mechanism of chemical reactions taking place on solid surfaces. He is now engaged in working out the laws according to which atoms and molecules distribute themselves over surfaces, forming monatomic layers—laws of importance in understanding many simple phenomena, such as those of the spreading of oil films on water and of lubrication.

BY-PRODUCTS

Toleration

THE Barrister dropped in this morning to find out how much the universe had expanded since our last conference. He was in such good spirits that I decided a little sobering was indicated; so I read him the news that certain patriotic individuals were opposing the admission of Professor Einstein to this country, on the grounds that the Professor is a dangerous radical. Their reasons are political—not, as might be justified, mathematical.

The Barrister snorted and squared away for action.

"When we consider the characteristics of an educated man," he began, "one of the prominent qualities appears to be his toleration. However tenacious he may be of his own judgments, he recognizes as a basic principle the right of every other man to form and defend his own conclusions. Intellectual opposition stimulates him. He is cautious in forming opinions because he realizes the liability to error in human reasoning, and the large part that latent prejudices play in molding thought."

"That is mostly Plato," I interjected, wickedly.

He waved his hand indifferently and continued, "Toleration is a sign of mental discipline. (Find that in Plato if you can!) The educated man has to a considerable degree a conscious control over his mental processes and has in addition the means of avoiding or at least of minimizing any false pressure from his emotional area. To some extent he may control this latter area also and with greater success according to his understanding of it.

"Toleration is a hard lesson to learn. We are born intolerant, and much of our early training tends to confirm this attitude. It is easier to be intolerant, to adopt some doctrine and to ignore every consideration contrary to it. Toleration demands thinking, and thinking is hard labor. Man avoids it when possible."

"Of course," we agreed, "toleration in many cases results simply from laziness, from disinclination to the exertion of controversy."

"I'm just coming to that," he broke in. He doesn't like me to anticipate his choice ideas. "The most tolerant attitude toward contrary opinions proceeds either from indifference or certainty. He who is certain of the correctness of his conclusions and is prepared to demonstrate

their truth knows that he can repel opposing arguments, and he is not moved out of complacency by attack. The angrier a man gets in controversy, the less intellectual support his position has."

"Dogmatism is always more emotional than rational," we contributed, feeling that we had said something a little better than usual and preening ourselves on it.

"Besides being the natural child of ignorance, intolerance is subject to the more serious charge of being selfish. It seeks to impose its convictions upon others, outraging the intellectual freedom of humanity. As such it is an offense, not merely against good breeding, but actually against human dignity; and it is an effective obstacle to progress of any kind."

He paused for a second wind.

"You are absolutely right," we agreed heartily, "there ought to be a law against it!"

He glared, muttered something about some people being hopeless and left us.

They Say

"The men who see nothing but the lions in the path, who fear ridicule and dread mistakes, who behold the faults they may commit more plainly than the guerdon to be won, win no battles, write no books, carve no statues, paint no pictures."—H. C. LODGE

"Most of our physical impulses are wise; most mental impulses otherwise."—CARBONIUM GNITRATE.

—*The Autocratic Chemist*

Tells about the Purchasing Chemist

A. X. Schmidt, F.A.I.C., is a C.C.N.Y. graduate who spent two years as chief chemist to the Durkee Famous Foods Company, three years as chemist to the National Biscuit Company, and also served as research chemist at the Technidyne Corporation. He is now technical director of Food Services, Inc., 369 Lexington Avenue, New York City, where he applies the theory expressed in his article—that the purchasing chemist is more than a mere analyst who checks the quality of the goods received.

Exceptionally energetic, with a resourceful, practical mind, Mr. Schmidt is fond of athletics, particularly tennis, golf, and swimming. Another hobby is music.

BOOK REVIEW

1932 Chemical Engineering Catalog. Seventeenth Annual Edition. *The Chemical Catalog Co.* New York. $3.

It may seem to some of our readers that this book, now in its seventeenth edition, does not require notice in this space. Nevertheless, there are two aspects of importance which justify its mention. Both of these depend on its size and its content. There are 847 pages divided as follows:

Alphabetical Index of Firms	6 pages
Trade Name Index	15 pages
Classified Index of Equipment and Supplies	102 pages
Listing of Equipment and Supplies	492 pages
Classified Index of Chemicals and Raw Materials	82 pages
Listing of Chemical and Raw Materials	78 pages
Listing of Technical and Scientific Books	66 pages

This enumeration shows in a very impressive manner the magnitude of the achievements of chemistry in the United States, and hence, merely on this score, is deserving of mention.

Going further, there is no chemist who at some time or other will not be able to save valuable time by shortening the search for the name of the company which supplies a material or equipment or a book which he needs. K. M. H.

INSTITUTE NOTES

National Council

The ninety-sixth meeting of the council of The American Institute of Chemists was held at The Chemists' Club, 52 East 41st Street, New York, N. Y., on Thursday, November 17, 1932.

In the absence of President Henry G. Knight, Dr. M. L. Crossley presided.

The following councilors and officers were present: Messrs. Arnstein, Breyer, Crossley, Jackson, Moody, Morgan, Neiman, Sachs, and Zons. Mr. E. L. Gordy, editor of THE CHEMIST, was also present.

The Secretary submitted a letter from Dr. Knight relative to the Shannon Bill and the investigation by the Shannon Committee of the activities of the government with respect to private enterprise; and after discussion, it was

RESOLVED, That the Secretary write the chairman of that committee that the Institute, realizing the technical nature of the matters presented to the committee, through its national council offers its whole-hearted cooperation to the committee in its investigation.

It was further

RESOLVED, That a copy of the letter to the Shannon Committee be sent to the Association of Consulting Chemists and Chemical Engineers and to the Institute of Chemical Engineers with inquiry as to whether or not they wish to cooperate with The American Institute of Chemists.

The Secretary presented a letter from the United States Civil Service Commission to the effect that an error appeared in list 43, and that instead of a "Junior Chemist" at $1440 the position should have been listed as "Junior Scientific Aide." The Secretary was requested to write the Commission and inquire if this is simply a change of nomenclature and if the qualifications necessary

for a Junior Scientific Aide are those set up in List 43.

The following resignations were accepted with regret: Matthew A. Hunter, George W. Pressell, George A. Starkweather, and S. Bradford Stone.

Twenty new members were elected.

Julian Saphier was raised from Junior to Associate.

Dr. Jackson and Mr. Gordy reported in detail for the membership committee and presented a report showing the cost of the membership drive to date, with the results produced therefrom.

Mr. Breyer reported upon the plans of the relief committee for chemists in the metropolitan district.

The Secretary was directed to call a meeting of the committee on insurance for Tuesday, November 22, 1932, at 5 o'clock at The Chemists' Club, if it were possible to have a representative of Ourbacker and Weiss present.

Mr. Gordy suggested that a future issue of THE CHEMIST be given over to a list of the members of the Institute divided as to their qualifications, which suggestion met with the approval of those of the councilors present; but upon motion made and seconded action thereon was postponed to a later date.

HOWARD S. NEIMAN, *Secretary*

Pennsylvania Chapter

The November meeting of the Pennsylvania Chapter took the form of a trip through the photo-engraving plant of the Philadelphia *Public Ledger*, on Saturday afternoon, November fifth.

The members of the chapter and their guests met at 1:15 in the lobby of the Ledger Building, where they were provided with guide service on their trip through the plant. Special attention was paid to the chemical features of the photo-engraving process.

The executive committees of the American Chemical Society (Philadelphia Section), of The American Institute of Chemists (Pennsylvania Chapter), and of the Philadelphia Institute of Consulting Chemists and Chemical Engineers, meeting in joint session, adopted the following resolution:

"Whereas there exists at this time a grave lack of privately financed research: Be it resolved that the above societies urge the government not to curtail but rather to extend to the limit of its resources its fundamental chemical research activities."

HOWARD STOERTZ,
Reporter

New York Chapter

A meeting of the New York Chapter was held at The Chemists' Club on Friday evening, November 11th, with Chairman D. D. Jackson presiding. Twenty-eight members and guests attended the dinner, which was served in the main dining room of the club; and a total of eighty were present for the talk of the evening, by Professor Colin G. Fink, of Columbia University. Dr. Fink discussed "The Electrochemist in Art and Archeology," and illustrated by lantern slides and specimens the remarkable achievements made possible by the new electrochemical method of restoring ancient bronzes and other metal objects.

After describing the difficulties encountered in persuading museums to allow electrochemical experimentation with valuable Egyptian relics, Dr. Fink explained the studies which were finally undertaken using privately owned

bronzes. It was found that the corroded mass of copper and tin salts, often swollen to double the original size and almost shapeless, still carried the details of the original design. By making a bronze the cathode in a bath using 2% sodium hydroxide as the electrolyte, figures which before restoration had shown only a general outline once more became sharply defined. In one case, noted by *Time*, even the toe-nails of a statue were clearly brought out.

Masses of coins, found in coffins and apparently hopelessly corroded together, were reduced in the same way from the salts to the metal. They were separated by the process, and the designs came out in sharp detail.

Restoration by electrochemical methods often uncovered surprising facts about these Egyptian antiques. Objects supposed to be bronze because of a green exterior of copper salts were found to be solid silver, with a composition approximately that of American silver coins. Other objects were found to be silver decorated.

Perhaps Dr. Fink's most startling statement was that the Egyptians knew the secret of electroplating and had deposited films of antimony on copper vessels by electrochemical displacement, using a solution of antimony sulphide, vinegar, and sodium chloride as the electroplating bath.

Once shown to be practicable, the work begun by Dr. Fink received wide attention from museums and was taken up eagerly by the Field Museum in Chicago and by the British Museum, as well as by the Metropolitan. In closing, Dr. Fink expressed his appreciation and that of his colleagues for the cooperation given by John D. Rockefeller, Jr., by the Everett Macy Estate, and by other owners of valuable Egyptian antiques.

Washington Chapter

A meeting of the Washington Chapter of The American Institute of Chemists was held Friday evening, November 4, 1932, in the board room of the Cosmos Club.

Mr. Watson Davis of *Science Service* was the principal speaker of the evening, and spoke on "Popularizing Chemistry." Before launching upon his main subject he gave a few remarks in defense of government research, which is now being attacked by certain commercial organizations. He pointed out that the dividends paid on the work already done are so enormous in comparison to the cost that the people cannot afford to abolish government research.

JAMES B. MARTIN, *Reporter*

New Members

The following members were elected at the November 17th meeting of the National Council:

FELLOWS

WILLIAM BERNARD ANDERSON, *Research Chemist*, Titanium Pigment Co., Inc., 105 York Street, Brooklyn, N. Y.

ADDISON C. ANGUS, *Secretary and Treasurer*, Philadelphia Clinical Laboratory, 1833 Chestnut Street, Philadelphia, Pa.

MARION SMITH BADOLLET, *Research Chemist*, Johns Manville Corp., Manville, N. J.

HARRY J. BASTONE, *Plant Chemist*, American Sugar Refining Company, 49 South 2nd Street, Brooklyn, N. Y.

RAYMOND DEAN COOL, *Research Associate in Chemistry*, University of Pennsylvania, Philadelphia, Pa.

ANTHONY WILLIAM DELLER, *Patent Lawyer*, 67 Wall Street, New York, N. Y.

GUSTAV EGLOFF, *Director of Research*, Universal Oil Products Co., Strauss Bldg., Chicago, Ill.

FREDERIC STEARNS GRANGER, *Chemist*, Dr. W. M. Grosvenor, 50 East 41st Street, New York, N. Y.

CHARLES JEROME HOLLAND, *Patent Attorney*, 420 Lexington Avenue, New York, N. Y.

DAVID HOUGHTON JACKSON, *Chemical Engineer*, Croll-Reynolds Engineering Co., 17 John Street, New York, N. Y.

EDWARD S. JOHNSON, *Chemist*, Dr. W. M. Grosvenor, 50 East 41st Street, New York, N. Y.

HAROLD T. LACEY, *Research Chemist*, Calco Chemical Co., Bound Brook, N. J.

ALEXANDER JOHN SCHWARZ, *Associate Professor*, University of Tennessee, Memphis, Tenn.

ASSOCIATES

KENNETH GROVES CHESLEY, Mineola, Kansas.

HUGH VINCENT ALESSANDRONI, *Research Chemist*, Titanium Pigment Co., Inc., 105 York Street, Brooklyn, N. Y.

LOUIS WILLIAM GATES, *Research Chemist*, Lehn and Fink, Inc., 194 Bloomfield Ave., Bloomfield, N. J.

ADA M. PLATOW, *Analytical Chemist*, The Amp Research Laboratories, 3240 103rd Street, Corono, L. I., N. Y.

CECIL ARTHUR SPENCER, *Research Chemist*, Calco Chemical Co., Inc., Bound Brook, N. J.

STUDENT MEMBERS

WILLIAM ROSE, *Chemist's Assistant*, Emil Calman and Co., 43–47 Vernon Blvd., Long Island City, N. Y.

CARL GROTHUES, *Assistant Chemist*, Dr. W. M. Grosvenor, 50 East 41st Street, New York, N. Y.

Applications for Membership

FELLOWS

LEMUEL M. AYCOCK, *Chemist*, The Chemists' Club, 52 East 41st Street, New York, N. Y.

BERNARD SAWYER BRONSON, *Professor of Chemistry*, New York State College for Teachers, Albany, N. Y.

WILLIAM LLOYD EVANS, *Chairman*, Department of Chemistry, Ohio State University, Columbus, Ohio.

IRVING FLAUMENHAFT, *President*, Lacquer and Chemical Corporation, 214 40th Street, Brooklyn, N. Y.

JAMES OTIS HANDY, *Consulting Chemist*, 50 East 41st Street, New York, N. Y.

RALPH HART, *Chemist and Treasurer*, Hart Products Co., 1440 Broadway, New York, N. Y.

ARTHUR W. HIXSON, *Professor*, Columbia University, New York, N. Y.

JOHN PLATT HUBBELL, *Partner*, Singmaster and Breyer, 420 Lexington Avenue, New York, N. Y.

CARL IDDINGS, *Research Chemist*, 3 Grenfell Avenue, Kew Gardens, Long Island, N. Y.

ALEXANDER GEORGE KELLER, JR., *Ass't Director of Laboratories*, Graduate Hospital, University of Pennsylvania, Philadelphia, Pa.

HARRY CONRAD KOFKE, *Consulting Chemist*, 235 Dock Street, Philadelphia, Pa.

ROBERT EDWARD LYONS, *Professor of Chemistry*, Indiana University, Bloomington, Indiana.

CHARLES W. MACFARLANE, *Consulting Chemist*, Oaks, Montgomery County, Pa.

LEWIS HART MARKS, *Consulting Chemist, Executive Secretary*, Industrial Alcohol

Institute, 420 Lexington Avenue, New York, N. Y.

ISADOR MILLER, *Chemist*, Dr. W. M. Grosvenor, 50 East 41st Street, New York, N. Y.

THOMAS J. POTTS, *Chemist*, Dr. W. M. Grosvenor, 50 East 41st Street, New York, N. Y.

EDWARD ROSENDAHL, *Chemist*, Glyco Products, Inc., 33 35th Street, Brooklyn, N. Y.

WILLIAM R. SHERIDAN, *Chief Chemist*, Dunlop Tire and Rubber Corporation, Sheridan Drive, Buffalo, N. Y.

ALEXANDER SILVERMAN, *Head of the Department of Chemistry*, University of Pittsburgh, Pittsburgh, Pa.

WILLIAM A. SMITH, *Manager*, Gasoline and Oil Departments, Larkin Co., Inc., 680 Seneca Street, Buffalo, N. Y.

NATHAN SULZBERGER, *Independent Research Chemist*, Central Hanover Bank and Trust Company, 60th Street and Fifth Avenue, New York, N. Y.

THOMAS G. THOMPSON, *Professor of Chemistry*, Oceanographic Laboratories, University of Washington, Seattle, Washington.

GEORGE ALONZO ABBOTT. *Professor*, University of North Dakota, Grand Forks, N. D.

ASSOCIATES

GARRETT DAVIS BUCKNER, *In charge Animal Nutrition*, Kentucky Agricultural Experiment Station, Lexington, Ky.

THEODORE H. GEIGER, *Chemist*, Pilot Chemical Corporation, Carlstadt, N. J.

DAVID B. HARDIN, *Assistant Professor*, Textile School, N. C. State College, Raleigh, N. C.

JOSEPH M. QUISITO, *Physiological Chemist*, 62 Butler Street, Trenton, N. J.

STANLEY H. WHITING, *Research Chemist*, Calco Chemical Company, Bound Brook, N. J.

FRANK W. WILDER, *Research Chemist*, Calco Chemical Co., Inc., Bound Brook, N. J.

JUNIORS

FRANK ELLIS ELDER, *Student*, 820 S. Stanislaus St., Stockton, Calif.

JAMES EDWARD GILL, *Chemist*, Ken Bleaching and Finishing Works, Concord, N. C.

ALFRED E. HARTMANN, *Research Chemist*, Robert Raul, Inc., 480 Frelinghuysen Avenue, Newark, N. J.

JOHN FRANK LONTZ, *Graduate Assistant*, Temple University, Philadelphia, Pa.

Schedule of Meetings

New York Chapter

December 16, 1932. Joint Meeting. A.I.C. in charge, and the following societies participating: Society of Chemical Industry, American Chemical Society, Société de Chimie Industrielle, and The Electrochemical Society.

January 13, 1933
February 3, 1933
March 3, 1933
April 7, 1933
May 5, 1933

Unless otherwise announced, these meetings will be held at The Chemists' Club, 52 East 41st Street, New York, N. Y. Dinner at 6:30. Meeting at 8:00.

NEWS

John Traquair, F.A.I.C., read a paper on "Economic and Chemical Aspects in the Use of Straw for Making Paper" before the Dayton section of the American Chemical Society.

Irving Langmuir, newly designated recipient of the Nobel prize for chemistry in 1932, was the guest of honor at a dinner at The Chemists' Club on Tuesday, November 29th.

Dr. Langmuir has been a member of The Chemists' Club since 1919, and was elected an honorary member in 1931.

(Further information about the Nobel Award will be found on page 844.)

Ross A. Baker, F.A.I.C., will speak before the Detroit Section of the American Chemical Society on December 15th. The subject of his talk will be "Problems in Chemical Education."

Unemployment Relief

Harry L. Derby, president of the American Cyanamid Company, has accepted the chairmanship of the Chemicals and Paints Division of the Emergency Unemployment Relief Committee headed by Harvey Gibson. This is the group which last year under the chairmanship of Horace Bowker raised $140,000 for the general relief fund.

Since it is probable that none of the Gibson Committee's funds will be allocated to chemists, it is suggested that chemical contributors reserve a portion of their donations for contribution to the Breyer Committee, which concerns itself particularly with unemployment and relief for chemists and chemical engineers.

Anniversary Meeting

Marston T. Bogert, F.A.I.C., will address the meeting of the Eastern New York Section of the American Chemical Society on December 16th on "The Organic Chemistry of Vitamin A." This meeting, to be held at Union College, will mark the 25th anniversary of the founding of the Eastern New York Section. The Section was founded

while Dr. Bogert was president of the American Chemical Society; and it was he who delivered the address at the Section's first meeting.

Other addresses by Dr. Bogert:

DEC. 8TH. Rhode Island Section. "The Organic Chemistry of Vitamin A."

DEC. 13TH. Erie Section. "Musk: Animal, Vegetable, Artificial, and Synthetic." Dr. Bogert will also deliver a radio broadcast on "Perfumes and Progress in Science."

DEC. 14th. Cleveland Section. "Musk."

DEC. 16TH. Student assembly of Union College. "The Philosopher's Stone of the Twentieth Century."

Publications by Members

Chemical and Metallurgical Engineering:

D. H. Jackson: "Facilitating Higher Vacuum in Industrial Processes."

The American Dyestuff Reporter:

K. M. Herstein: "Textile Printing."

Paint and Varnish Production Manager, December:

Julian Saphier: "High Acid vs. Low Acid Gum."

Round Table Meetings

A series of round table discussions on subjects of current scientific interest will be held this year by The American Institute of the City of New York at its headquarters in the Lincoln Building, 60 East 42nd Street, New York. The meetings will be conducted by noted men of science and will be opened to members of the Institute and their guests.

The Institute, which is the oldest scientific organization in New York State, is providing these opportunities for the discussion of subjects which are of the utmost importance to our future because it is especially interested in acquainting the public with modern scientific achievements. Formerly it brought new developments to public attention by holding industrial fairs and exhibitions which are still remembered by the older generation of New Yorkers.

The first Round Table on November 18th was conducted by Professor S. Ralph Powers of the department of natural science of Teachers College, on the subject of "Technocracy." Mr. Howard Scott, director of the Energy Survey of North America, was the guest authority on this subject, which has, in the last few months, aroused wide interest among scientists and engineers.

The second discussion on December 16th will be led by Dr. Oscar Riddle of the department of experimental evolution, Carnegie Institution, at Cold Spring Harbor. The subject of this Round Table will be "Human Sterility," and the guest authority, Dr. Allan Winter Rowe, Director of Research, Evans Memorial Hospital, Boston, Massachusetts.

Dr. Charles N. Frey, director of the

EPHRAIM FREEDMAN, F.A.I.C.

Fleischmann Laboratories, will lead the discussion of "Vitamins in Relation to General Well Being" on January 6, 1933. Dr. H. C. Sherman, of the department of chemistry of Columbia University, will be the guest authority.

Mr. Ephraim Freedman, director of the bureau of standards of R. H. Macy and Company, will conduct the January 20th meeting. The subject will be "Testing Merchandise in Department Stores" and the guest authority, Dr. Joseph F. X. Harold, F.A.I.C., consulting textile chemist.

The Burrell Technical Supply Company of Pittsburgh has just issued Catalog 78, describing the latest models of gas analysis apparatus as well as special new equipment for electroanalysis, potentiometric titration, high-temperature work, etc.